

Chapter 2

Attention-Deficit/ Hyperactivity Disorder

Most people in today's society are somewhat familiar with Attention-Deficit/Hyperactivity Disorder (ADD/ADHD), and it is one of the most common reasons children are referred to mental health professionals (Brown, 2000). Public media have reported astounding increases in the number of children receiving this diagnosis. Although research studies have indicated a fairly low rate of actual occurrence of ADD/ADHD, it has become the diagnosis of the decade, and gifted children have been caught up in its mushrooming popularity. The prescription of stimulant medication, which is frequently used to treat ADD/ADHD, has increased significantly during the past 20 years (Ghodse, 1999; Olfson, Marcus, Weissman, & Jensen, 2002).

Gifted children, just by their nature, show many behaviors that are similar to children who suffer from ADHD (Hartnett, Nelson & Rinn, 2004). Both groups may have social problems and academic difficulties (Guenther, 1995; Leroux & Levitt-Perlman, 2000). In fact, the DSM-IV-TR recognizes this possibility by stating, "Inattention in the classroom may also occur when children with high intelligence are placed in academically understimulating environments" (American Psychiatric Association, 2000, p. 91).

Several authors, including those of this book, are of the opinion that gifted children are incorrectly diagnosed as suffering from ADD/ADHD particularly often (Baum & Olenchak, 2002; Baum, Olenchak, & Owen, 1998; Cramond, 1995; Freed & Parsons, 1997; Lawler, 2000; Lind,

1993; Silverman, 1998; Tucker & Hafenstein, 1997; Webb, 2001; Webb & Latimer, 1993), even though, as Kaufmann, Kalbfleisch, and Castellanos (2000) point out, there are as yet no *empirical* data in the medical, educational, or psychological literature to substantiate this concern.

The syndrome of Attention-Deficit Disorder (ADD) with or without hyperactivity (ADHD) includes an array of diverse symptoms that typically occur together, though the core symptoms of ADD/ADHD are inattention, impulsivity, and hyperactivity (American Psychiatric Association, 2000). Some researchers (e.g., Lahey, Miller, Gordon, & Riley, 1999) estimate the prevalence of ADD/ADHD among school age children as 2% in boys and girls combined. The DSM-IV-TR suggests a prevalence of ADD/ADHD as 3% to 7% in school age children, with a higher incidence of ADD/ADHD diagnosed in boys.

ADD/ADHD, Gifted, or Both?

Children are usually suspected of having ADD/ADHD because they have attention problems or because they are hyperactive. The child who truly suffers from ADD/ADHD has attention deficits associated with a range of specific neurological injuries and mild developmental delays.

However, the diagnosis of ADD/ADHD is supposed to be a diagnosis of last resort, to be made by exclusion only after ruling out other possible disorders or problems such as depression, anxiety, learning disabilities, preoccupation with personal problems, unrealistic expectations, situational difficulties, boredom due to a mismatch of abilities and expectations, auditory processing deficits, concussion or mild traumatic brain injury, ill health, substance abuse, fatigue from sleep disorders, lack of energy because of poor eating habits or an eating disorder, and even cognitive slowing caused by current medications. Because a clinician must take the time to rule out many other possibilities including all those listed above, ADD is a difficult diagnosis to make. The diagnosis of ADD should not be given following a 10-minute appointment with a family doctor who has looked at a questionnaire filled out by the parent and the school personnel.

Some gifted children do truly suffer from ADD/ADHD; they are both gifted and ADD/ADHD (Moon, Zentall, Grskovic, Hall, & Stormont-Spurgin, 2001). It is important to acknowledge both labels, because some professionals appear to hold the opinion that the two conditions (ADD/ADHD and giftedness) cannot co-exist. We do not share that

view. Gifted children can—and do—suffer from ADD/ADHD. In fact, advanced intellectual abilities can obscure symptoms of ADD/ADHD and can delay the appropriate diagnosis (Moon, 2002). Children who are particularly bright can, in the earlier grades, pay attention to only a small portion of the class period, yet because of their high intellectual level, they can still perform well on the tests or other assignments when compared with age peers.

Our experience suggests that perhaps as many as half of gifted children with the diagnosis of ADD/ADHD do not have the significant impairments due to attention or hyperactivity that are required by the DSM-IV-TR to make an ADD/ADHD diagnosis. Although they do show some problematic behaviors in some settings, these behaviors can be better explained by their giftedness and its implications. In short, they are simply incorrectly diagnosed as ADD or ADHD, and the interventions necessary to address the very real problems experienced are quite different from the treatment for ADD/ADHD.

Here is a case example. Rafael's teachers say he isn't working up to his ability. He doesn't finish his assignments, or he just puts down answers without showing his work. His handwriting and spelling are poor. He sits and fidgets in class, talks to others, and often disrupts class by interrupting others. He used to shout out the answers to the teachers' questions (usually correct answers), but now he daydreams and seems distracted. Is Rafael ADD/ADHD or gifted?

He could be either, or there could be other reasons for his behaviors. In current practice, a parent's report of such behaviors to a physician may prompt not only a diagnosis, but also a medication trial. And when the initial medication does not yield the anticipated or desired results, no further investigation is pursued; rather, a new and different medication or a higher dose is attempted. In some cases, the medication does create an apparent change in the problem behaviors, prompting the circular reasoning that the diagnosis must be correct, regardless of the research that shows that the stimulant medications used to treat attention problems improve attention span in *any* individual, whether that person has ADD/ADHD or not.

In everyday practice, a child's high ability level and associated behaviors are rarely even factored into the equation. For example, one parent reported that her child's psychologist said, "I understand that your child is gifted, but let's leave that out of the equation for now...."

Wait! That's like trying to ignore someone's height or weight when considering the size of pants to buy. Giftedness is an inherent part of the child's total nervous system and must be considered at every turn, especially in the diagnostic and treatment aspects that are the focus of this book.

Here are three vignettes that illustrate common symptoms of ADD/ADHD. It is interesting to consider which children are merely showing signs of giftedness, which ones are showing ADD/ADHD behaviors, or whether they are showing signs of both.

Aryanna is an eight-year-old adopted child of a single mother. She has always been "a difficult child" but very bright, and a family friend suggested that her IQ be evaluated. On the WISC-III, administered by a psychologist, she scored a Full Scale IQ of 130. Her Verbal IQ score was 141, and her Performance IQ score was 123.

Her mother and nanny reported that despite a very organized household, clear expectations, and consistent discipline, she seldom remembered to do her assigned chores and rarely completed any chores without constant supervision. She "forgot" to wash her hands after going to the bathroom, despite careful instruction, regular reminders, and negative consequences. In fact, she seemed rather puzzled about her own behavior, including her lack of friends. She was seen as "pesky" by her three siblings.

The psychologist asked her to listen to an audiotope and raise her hand whenever she heard a certain word. She noticed the first time the word was said, but thereafter, despite apparent cooperation, she missed the remaining times the word was read. She was overweight and was sent for a physical exam and thyroid tests, which came back normal. She was placed on Ritalin® and, after adjusting the dose upward twice, she became "a different child," according to her mother and teacher. She began to make friends at school, cooperate at home, wait her turn, improve her grades, and lose weight. Adults in her life now say they can tell when her medication wears off, as her behavior deteriorates noticeably.

Andrew is the six-year-old son of two physicians. Because his "terrible two" temper tantrums continued well past the age of five, his parents asked for an evaluation by a psychologist. They reported temper tantrums in response to nearly any frustration, and handling him physically was becoming more difficult as he grew older. His mother exhaustedly said, "If this keeps up, I won't be able to control his violent outbursts!"

Andrew explained that he could not hold still or stop thinking long enough to get to sleep and was frequently awake after his parents had gone to bed. Still, he woke early and was very active physically all day. Whenever he wasn't up and running around—as in church and at restaurants—he fidgeted, wiggled, and shrugged.

During testing, the psychologist noted that the boy was unusually verbal and articulate for his age, and the parents remarked, "He can talk your ear off." At school, his teacher reported that he was either talking and bothering his classmates, or he was so absorbed in a book that he could not be reached unless someone physically touched him. He sometimes remained seated, reading, oblivious to the class departure for recess (his favorite activity). A WISC-III was administered, and his IQ was estimated at 140. The psychologist diagnosed ADD/ADHD, and a pediatrician started him on Ritalin®. Within a few weeks, Andrew had developed tics, a tremor, and increased irritability. The Ritalin® was stopped and the symptoms improved, but the tics continued.

Chemissa is a nine-year-old girl referred for evaluation by her teacher who suspected ADD/ADHD. The teacher reported frequent daydreaming, saying that Chemissa was off-task most of the day. She did not disrupt class and generally did well on tests, but she rarely finished her homework. She had few friends and spent most of recess reading or staring into space. Her evaluation did not include an IQ test. However, based the teacher's

reports on the Conners' checklist rating scale, a pediatrician placed her on Ritalin®.

After several weeks, her mother reported that Chemissa was finishing her homework. The teacher noted increased participation in class. Although the school faithfully administered the medication, the mother frequently forgot it. Chemissa's improvement waxed and waned; this inconsistency was attributed to the irregular dosage of Ritalin®.

As Kaufmann, Kalbfleisch, and Castellanos (2000) point out, a diagnostic error that misses ADD/ADHD can be just as serious as incorrectly concluding that a gifted child suffers from ADD/ADHD. If ADD/ADHD is overlooked in a young child, that student may suddenly discover that the compensatory skills he used in elementary school are insufficient to meet the demands of the middle school or high school curriculum. The frustration can be substantial.

We agree with the admonition of Kaufmann, Kalbfleisch, and Castellanos (2000) that when a child's behavior causes academic, social, or self-concept impairments, it is important to examine that child clinically to rule out conditions that are potentially treatable. However, if high intellectual ability is present, the child should be evaluated by someone with training and experience with gifted children (Silverman, 1988). We raise these cautions because the behaviors of a child with ADD/ADHD are often similar to traits typically attributed to creativity or giftedness (Cramond, 1995) or to overexcitabilities (Piechowski, 1997; Silverman, 1993), and the recommendations for giftedness, creativity, or overexcitabilities should be different than those for a child with ADD/ADHD. In addition, medications are not without risk and should not be prescribed simply on a trial basis if there is any other way to sort out the diagnosis, especially when both the diagnosis and the treatment are non-specific.

While difficulty with adherence to rules and regulations is generally accepted as one sign of ADD/ADHD (Barkley, 1990), similar behaviors can be seen in gifted children, but for different reasons. Even in the early grades, exceptionally bright children actively question rules, customs, and traditions. Their intensity makes them prone to engage in power struggles with authority, and these behaviors often cause discomfort for parents, teachers, and peers.

Impairment

Level of impairment for the child is particularly important in diagnostic and treatment decisions. But the level of impairment is based on a subjective assessment that is highly related to the child's situation at school or at home. In the classroom, what may be perceived as inability to stay on task is more likely to represent boredom in gifted children. As noted above, this is one diagnosis for which the DSM-IV-TR does recognize the impact of giftedness on the diagnostic process.¹

Gifted children generally perform well if they are interested in the task or are otherwise motivated. Lack of interest or motivation can produce inaccurate results on objective tests of attention, as well as on subjective evaluations, such as behavior checklist ratings done by parents or teachers. The behaviors that look like attention impairment only indicate boredom and disinterest. An assessment of motivation is, therefore, a very important part of the evaluation.

Gifted children spend one-fourth to one-half of regular classroom time waiting for others to catch up, perhaps even more so if they are in a heterogeneously grouped class (Gallagher & Harradine, 1997; Webb & Latimer, 1993). Gifted children's specific level of academic achievement is often two to four grade levels above their actual grade placement (Rogers, 2002). They can finish their work quickly, rapidly grasp the concepts being presented, and then find that the class work involves extensive repetition and a too-slow pace (Reis et al., 1993; Winner, 1997). Creative responses by such children to non-challenging or non-stimulating classroom situations are likely to result in off-task behaviors such as daydreaming, disturbing classmates, or other attempts at self-stimulation. Such use of extra time is often the cause of school referral for evaluation of possible ADD/ADHD.

Activity Level

"Hyperactive" is a word often used by parents to describe both gifted children and ADD/ADHD children. Parents of these gifted children are using the term loosely, describing an extremely high energy level directed toward goals, but not a disorganized, ill-directed flow of energy as would be the case in ADD/ADHD. ADD/ADHD children have a high activity level that is pervasive across most situations (Barkley, 1990).

However, many gifted children are likewise very active. As many as one-fourth of gifted children require less sleep, and some need only four or five hours a night, while during waking hours, their activity level is quite high (Clark, 1992; Webb et al., 1982). In contrast to ADD/ADHD children, the activities of these very bright children can be focused, directed, and sustained for long periods. The very intensity of gifted children allows (or causes) them to spend long periods of time and much energy on whatever becomes the center of their focus. We must again note, however, that this may be different than the focus that is being sought by teachers or parents.

Diagnostic Criteria

Frequently, bright children are referred to psychologists or pediatricians because they exhibit behaviors such as restlessness, inattention, impulsivity, high activity level, or daydreaming—all behaviors that the DSM-IV-TR lists as associated with ADD/ADHD. In fact, the DSM-IV-TR formally lists 18 characteristics that may be found in children diagnosed with ADD/ADHD. Nine of these 18 characteristics deal with problems in inattention, and nine describe problems of hyperactivity and/or impulsivity.

In addition, there are four restrictions: (1) at least six of the nine characteristics in either category must be present, (2) the onset must be before age seven, (3) they must be present for at least six months in two or more settings, and (4) they must negatively affect the individual "to a degree that is maladaptive and inconsistent with developmental level" (American Psychiatric Association, 2000, p. 92). Developmental level implies age-appropriateness, but as we have seen, asynchrony in development is one of the markers of giftedness.

The DSM-IV-TR further suggests that there are four subtypes of Attention-Deficit/Hyperactivity Disorder (ADD/ADHD). These are: (1) Predominantly Inattentive Type, (2) Predominantly Hyperactive/Impulsive Type, (3) Combined Type, and (4) ADD/ADHD Not Otherwise Specified—i.e., there are clear symptoms of inattention or hyperactivity/impulsivity, but they do not exactly meet the published diagnostic criteria. According to the DSM-IV-TR, the behaviors listed in Table 2 comprise the diagnostic criteria for Attention-Deficit/Hyperactivity Disorder.

Table 2. Diagnostic Criteria for Attention-Deficit/Hyperactivity Disorder

(Reprinted with permission from the *Diagnostic and Statistical Manual of Mental Disorders*, Text Revision, Copyright 2000. American Psychiatric Association, p. 92.)

A. Either (1) or (2).

- (1) Six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.

Inattention

- (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- (b) often has difficulty sustaining attention in tasks or play activities
- (c) often does not seem to listen when spoken to directly
- (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- (e) often has difficulty organizing tasks and activities
- (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
- (h) is often easily distracted by extraneous stimuli
- (i) is often forgetful in daily activities

- (2) Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.

Hyperactivity

- (a) often fidgets with hands or feet or squirms in seat

- (b) often leaves seat in classroom or in other situations in which remaining seated is expected
- (c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- (d) often has difficulty playing or engaging in leisure activities quietly
- (e) is often "on the go" or often acts as if "driven by a motor"
- (f) often talks excessively
- Impulsivity
- (g) often blurts out answers before questions have been completed
- (h) often has difficulty awaiting turn
- (i) often interrupts or intrudes on others (e.g., butts into conversations or games)

- B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.
- C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).
- D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
- E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

Traditional Attempts at Diagnosing ADD/ADHD

The differentiation between ADD/ADHD and giftedness is not always easy to make, and it often requires observation in several settings over a period of time. A child's focus while watching television or playing videogames should not be included, because children with ADD/ADHD and children without ADD/ADHD often are equally mesmerized by

them. As the following list shows, similar behaviors are associated with both. Almost all of these behaviors are found in bright, talented, creative, gifted children in certain situations. How is a parent, teacher, or health care professional to ascertain the difference?

Table 3. Similarities between ADD/ADHD and Gifted Behaviors

Behaviors Associated with ADD/ADHD (Barkley, 1990)	Behaviors Associated with Giftedness (Webb, 1993)
Poorly sustained attention in almost all situations	Poor attention, boredom, daydreaming in specific situations
Diminished persistence on tasks not having immediate consequences	Low tolerance for persistence on tasks that seem irrelevant
Impulsivity, poor ability to delay gratification	Judgment lags behind intellect
Impaired adherence to commands to regulate or inhibit behavior in social contexts	Intensity may lead to power struggles with authorities
More active, restless than normal children	High activity level; may need less sleep
Difficulty adhering to rules and regulations	Questions rules, customs, and traditions

Rating Scales

Brief rating scales filled out by teachers or parents, such as the *Conners' Parent and Teacher Rating Scales-Revised* (1997) or the *Child Behavior Checklist* (Achenbach, 2001), are the most frequently used initial instruments to identify ADD/ADHD behaviors and patterns of behavior that may be problems. However, these scales most often only restate the behaviors used to describe ADD/ADHD in the DSM-IV-TR. Because of this, they may not be useful in differentiating between ADD/ADHD and gifted behaviors. Parents or teachers rate the behaviors on a scale using categories such as *Always*, *Frequently*, *Sometimes*, *Seldom*, or *Never*, in which each is given a point value. The points are then added up for various subscales about attention, activity level, depression, anxiety, and impulsivity. The health care professional uses the scores to quantify

how others see the child, allowing for a comparison of a parent's or teacher's view with a normative sample's view of children.

What such scales do not take into account is the *cause* of the behavior. The professional is, indeed, cautioned to look for other potential sources such as depression or anxiety, which may often cause a person to have thoughts that continually intrude so as to prevent concentration. Some, but in our experience all too few, children are fortunate enough to also have a thorough physical evaluation (which includes screening for allergies, mild traumatic brain injury, hypothyroidism, and other possible health concerns) and an extensive psychological evaluation, which includes assessment of intelligence, achievement, and emotional status to rule in or out other origins of the problem behaviors.

However, scant attention is given to the more common scenario for gifted children, namely that they may be in an educational setting that is inappropriate and insufficiently stimulating for them, or they may have a teacher who is unaware of the characteristics of gifted children and who is misinterpreting behaviors such as intensity and eagerness as impulsivity characteristic of ADD/ADHD.

Luisa was most certainly a gifted youngster with a special talent in computers. During her first semester of second grade, the computer teacher recognized her talent and that the curriculum being taught had nothing to offer Luisa. As a result, Luisa was allowed to monitor and assist other students. She often roamed the room and helped others. The teacher found her a wonderful asset to the class and thoroughly enjoyed her assistance, and Luisa thrived.

During the second semester, Luisa's new computer teacher was frustrated with Luisa's "inability" to sit still and mind her own business. The teacher thought that she "impulsively" assisted other students and "rarely" remained focused on her own work. She must certainly have ADD/ADHD, the teacher thought, and she mentioned this to the parent at her first opportunity. Subsequent evaluation showed no clinical evidence of ADD/ADHD.

The DSM-IV-TR, as well as most of the rating scales, lists "difficulty sustaining attention" as a cardinal characteristic of ADD/ADHD.

However, if the gifted child is spending a significant portion of class time reviewing material that she has known for several years, the universe in that child's head is likely to be far more interesting than anything that is going on in the classroom, and the child's attention is likely to wander.

Another listed characteristic of ADD/ADHD is "doesn't seem to listen when spoken to directly." Gifted children, with their imaginal overexcitability, may become so entranced with their thoughts or so engrossed in a book that they truly do not hear what others say. This can be problematic, but it is not the so-called "hyperfocus" of ADD/ADHD.

"Doesn't follow through on instructions" or "dislikes or is reluctant to engage in tasks such as schoolwork or homework" can be much more understandable as non-pathological when one realizes that the child is being required to "show how he got the answer" for math problems so easy for him that he rapidly figures them out in his head. Writing the steps, from his viewpoint, is simply useless "busy-work." In cases like these, the context of the behavior clarifies the origin.

"Easily distracted by extraneous stimuli" can be something other than ADD/ADHD for the child who has significant overexcitability in sensual areas. We have seen many gifted children who are exceedingly sensitive to odors, such as perfumes, or who have difficulty concentrating until the tags are cut out of the back of their shirt, or who are keenly aware of the noise and flicker of fluorescent lights in the classroom. While these issues do need to be addressed, this is a situation in which medication does not help.

"Difficulty organizing tasks and activities," "loses things," and "is often forgetful" are also characteristics of very "visual-spatial" children who are simply not adhering to the socially accepted structure. One mother tells the story of how her nine-year-old son lost his baseball glove—and it was during the middle of a game. Standing in the outfield, he suddenly saw a hot-air balloon. Immediately entranced by the colors, he thought of the perspective of the world from up there, and he then began to think about the physics principles involved when pilots navigate balloons. He was so deep in thought that he was unaware that his glove fell off his hand. He was also unaware that the inning was over, until the coach sent another boy out to fetch him. As he entered the dugout, he was genuinely embarrassed when the coach asked him why he did not have his glove, and he was unable to remember where he had left it.

Some professionals might maintain that these attention behaviors could, in fact, reflect ADD/ADHD. However, we think that it is important to first seek the simplest and least negative explanation for such behaviors. As noted earlier, it is also important to closely assess the level of impairment that exists. Just because a cluster of behaviors is present does not mean that a diagnosis must—or even should—be made. Unless that cluster is creating significant impairment in the child's life—socially, educationally, or otherwise—then the diagnosis should not be made simply on the basis that the behaviors are there. The level of impairment is easy to overlook, especially if one is simply counting the presence of certain behaviors or basing a judgment of impairment on what adults expect in an environment—expectations that may actually be inappropriate for that particular child.²

Attention deficits, like many disorders, are on a continuum with normal behavior, and ADD/ADHD is the extreme end of a normal psychological trait (Barkley, 1997). There isn't a clear signpost indicating when symptoms have crossed into the realm of pathological impairment. It isn't like crossing the state line into Wisconsin. Diagnosing ADD/ADHD warrants a thoughtful, complete evaluation, which includes awareness of the child and her context.

It is not appropriate to expect or force a person to act like someone else just to please others or to fit in. In medicine, treatments are judged not only on their effectiveness, but also by their side effects. One would not place a child who is allergic to wheat on steroids to prevent the reaction; one would stop feeding the child wheat. While gifted behaviors are often outside the norm and perceived as problems, changing the environment, not the child, is the most effective and benign intervention.

Hyperactivity and Impulsivity

A similar situation exists with regard to hyperactivity and impulsivity, which is the second major component of the diagnosis of ADD/ADHD. "Often fidgets," "squirms," "often on the go," "talks excessively," "often blurts out the answers before questions have been completed," "often has difficulty awaiting turn," and "often interrupts or intrudes on others" are some of the defining behaviors. The precocious verbal ability of gifted children, combined with their intensity and their curiosity, results in the same behaviors. The fidgety behaviors and rapid, repetitive movements may simply reflect psychomotor overexcitability. The interruptions may

reflect intellectual overexcitability as their enthusiasm overrides their judgment.

Are these indicators of behavioral disorders such as ADD/ADHD? Not necessarily. In fact, one study even indicated that first graders could lower their heart rate and stress level by swinging their legs while doing a passive learning task (Soussignan & Koch, 1985). In addition, chewing gum has been shown to improve concentration.

Tests: Intelligence, Achievement, and Neuropsychological

Individually administered intelligence tests, achievement tests, and neuropsychological tests can be quite helpful in determining whether a bright child has ADD/ADHD or whether the behaviors simply reflect a gifted child without ADD/ADHD. Individual evaluation will allow the professional to establish maximum rapport with the child to get the best effort on the tests—an essential aspect in the assessment process. During such individual testing, the gifted child usually becomes quite engaged with the challenges provided by the testing procedures, whereas the child with ADD/ADHD will find these challenges frustrating and loses rapport.

The interpretation of intelligence, achievement, and neuropsychological tests requires considerable specialized professional training. It is not sufficient to simply examine overall IQ or achievement test scores, or even to look at specific scales that have appealing names, such as the Freedom from Distractibility factor on the WISC-III or the Working Memory Index on the WISC-IV. A sophisticated and detailed approach is needed, and some specific information and guidelines of interest to health care professionals about such an evaluation is contained in the endnote.³

Personality Testing

Personality tests administered by counselors and psychologists can allow examination for possible emotional problems that could be causing the behaviors that can look like ADD/ADHD. Though mentioned in the DSM-IV-TR as alternative conditions that should be considered, anxiety and depression are, in fact, seldom examined as causes for behaviors that resemble ADD/ADHD. However, if personality testing is done, the psychologist should be aware that gifted children's overexcitabilities (i.e., sensitivity and intensity) often cause their responses to be imbued with emotion. On projective tests like the Rorschach or story-telling tests, for example, these children tend to give more imaginative or "fabulized

responses,"⁴ even though the structure and organization of their responses is generally excellent (Webb & Kleine, 1993). A psychologist who is not knowledgeable and alert could misconstrue those responses as indicating pathology.

It is also important to look beyond the initial response and explore possible reasons that a gifted child might respond in a certain way. For example, when a child indicates on a personality inventory that she "thinks about hurting herself," the context should be explored. In one situation, a gifted child's motive was assumed to be suicide, and appropriate precautions were taken. However, upon further questioning, she explained, "Well, have you ever gotten really frustrated and thought about just banging your head on the wall? I have, and that's what I was thinking about—I just get frustrated a lot."

It is important for any evaluator to spend time gathering information from persons who are significantly and regularly involved in the child's care, such as parents, grandparents, and teachers. In addition to providing a rich understanding of the child's current behavior, these conversations can also provide a more complete developmental and medical history.

Hyperfocus

Some professionals believe that if a person with ADD/ADHD has the ability to focus and pay attention in certain situations, then he is showing a condition that has been called "hyperfocus" (Hallowell & Ratey, 1994). Hyperfocus is an anomaly in some people with ADD/ADHD in which they are able to concentrate unusually well in a specific area. It is important to note that there are no empirical data that support hyperfocus as an aspect of ADD/ADHD. In gifted children without ADD/ADHD, this rapt and productive attention state is described by Csikszentmihalyi (1990) as "flow."

In children who do suffer from ADD/ADHD, the experience of hyperfocus is more likely to occur in the presence of events that are fast changing and engaging, such as action movies, sporting events, or computer games. There is empirical evidence for something called "perseveration" in children with ADD/ADHD, which means difficulty changing from one task to another (Barkley, 1997). These children will have difficulty shifting from one frame of mind to another or from one task to another. School settings typically require such frequent attention

shifts, and the tasks required of the child are often not intrinsically rewarding and involve some effort. ADD/ADHD is not necessarily characterized by an inability to sustain attention, but rather by difficulties in appropriately regulating the application of attention to various tasks, particularly to tasks that are not personally rewarding or that require effort.

Most importantly, these children have difficulty abandoning strategies, even when they are not succeeding. They will doggedly persist in doing something that doesn't work, hasn't worked in the past, and is unlikely to work in the future. What has been coined "hyperfocus" in persons with ADD/ADHD seems to be a less medical-sounding description of perseveration. Thus, the apparent ability to concentrate in certain limited situations does not exclude the diagnosis of ADD/ADHD.

Differentiating ADD/ADHD Behaviors from Gifted Behaviors

I was in denial about the possibility of my daughter having ADHD. Anytime she acted in an impulsive way or had outbursts of anger, I would dismiss it as being a side effect of her extreme precociousness and brilliance. I would tell myself that Einstein's mother must have had exhausting days trying to raise him and that Da Vinci's parents probably had a difficult time with his mood swings, too.

It was when my daughter's self esteem started to really drop that I began to consider getting her help. Her negative self-talk and anger, which I realized was from her inability to control herself, escalated as time went on. The fact that she was profoundly gifted, I think, only made it more difficult for her because she knew she was different in a multitude of ways.

When I decided to try medication, I was really worried that it would have negative effects. I didn't want her to feel even more odd than she already did. I was very happy and surprised to discover how well the medication worked for her. She was more in control of herself, and she could sit and communicate with us, whereas before, her thoughts flew so fast that she wasn't able to get them out in verbal form a lot of times. Best of all, her confidence has risen dramatically.

Situational Specificity of Behaviors

In our opinion, an essential approach to making a correct and distinct differential diagnosis of ADD/ADHD in a gifted child is for the professional to consider both the characteristics of the gifted/talented child and the child's situation. With gifted children, the problems tend to be specific only to certain situations; for children suffering from ADD/ADHD, the problems tend to be present in virtually all situations, although by definition, the problems have to be present and causing impairment in at least two settings only for the diagnosis to be made.

A characteristic of ADD/ADHD that does *not* generally have a counterpart in gifted children is that ADD/ADHD children are quite variable in how they do tasks. They are highly inconsistent in the qualities of their performance (i.e., grades, chores) in how quickly or efficiently they accomplish the task in almost every setting (Barkley, 1990). Gifted children generally maintain consistency in effort and high grades if they like the teacher and are intellectually challenged, and they may even become almost obsessive (an aspect of their intensity) to produce a product that meets their own self-imposed high standards. Thus, gifted children who show ADD/ADHD-like problems at school may not show such behaviors at home or when they visit a museum or library or zoo because they are genuinely interested in the project at home or the display at the museum. It is important to examine the context in which the problem occurs. Particularly telling is whether the problems are greatly reduced when the bright youngster is with other similarly talented children.

There are several environmental factors to consider when evaluating a child's behavior. First, in a new situation, an ADD/ADHD child may not show ADD/ADHD behaviors—only when the novelty wears off will these behaviors become apparent. In clinical practice, then, it is recommended that the professional schedule at least two separate office visits. In the first visit, the child may be on good behavior, but on the second or third appointment, the child with ADD/ADHD is likely to show the impulsive and inattentive behaviors that prompted the referral. Most ADHD children will become disruptive in the office, despite the warnings, pleadings, and exhortations by their parents prior to and even during the appointment.⁵ It is important to note, however, that such brief behavioral observations should not replace a comprehensive ADD/ADHD evaluation.

Second, in assessing behavior, the amount of structure in the environment must be considered. A child with ADD/ADHD may succeed in Ms. Harrison's class but not do so well in Ms. Ortega's class because Ms. Harrison is more structured. The child with ADD/ADHD needs limits and structure and generally responds best to concrete, sequential, brief, and small segments of work. In fact, one of the strategies for an ADD/ADHD child is to increase the amount of structure and routine in the child's day to help him regulate his own behavior. Gifted children like to know what to expect and may also do better in structured situations, but only if the situation is sufficiently stimulating. They will resist structure that is stifling.

A third environmental factor that can help distinguish between true ADHD and typical gifted behaviors involves not the time on task, but rather the time *off* task. The child with ADHD, once interrupted from a task, can be slow to return to task and far less likely than the typical child to return to task at all (Barkley, 1997). The gifted child, by contrast, can usually be brought back to the task at hand with relatively little prompting.

A fourth factor that helps further tease out the differences between ADHD and gifted behaviors involves parental observation. It is useful to ask the parents whether the child can engage in any solitary activity for long periods of time quietly without attention wandering or impulsive behavior. Parents of gifted children who do not have ADD/ADHD will quickly say, for instance, "Oh, yes. She's passionate about reading, and when she reads, she's as unmoving as a stone. She would read for hours, if we let her, and she is unaware of virtually everything around her." Such a child is very unlikely to have ADD/ADHD. Similarly, if the child assembles model ships, Legos®, or some other intricate project for 45 minutes or more with focus and attention, it is unlikely that the child is ADD/ADHD.

Sometimes parents will report that a child can focus intensely on electronic media, such as television, video, or computer games. However, these activities typically require little effort and are so rapid, constantly changing, and continuously reinforcing that they can hold the attention of *any* child, even one who suffers from ADD/ADHD (Borcherding et al., 1988; Douglas & Parry, 1994; Wigal et al., 1998). A child's attention to these electronic pastimes does not rule out the possibility of ADD or ADHD.

Evaluating these four environmental factors is particularly important in any attempt to diagnose ADD/ADHD in a gifted child. In short, gifted children who do not have ADD/ADHD have less difficulty attending for long periods of time and are especially engaged in those things that interest them; children with ADD/ADHD have more difficulty maintaining attention on anything for long periods of time, except television, computer games, intrinsically rewarding activities, or other fast-moving stimulation, because they are unable to stop—or “disinhibit” themselves—from acting on some other impulse.

Gifted Children with ADD/ADHD

Some gifted children do, indeed, have ADD/ADHD. As with other children who suffer from ADD/ADHD, the attention difficulties and impulsivity problems usually occur in several situations. These are children who will need treatment for their ADD/ADHD as well as educational accommodations for their giftedness, and it is important that one does not too quickly dismiss the possibility of ADD/ADHD in a child who is gifted.

Gifted children with ADD/ADHD present diagnostic and treatment dilemmas because of their stunning ability to produce at certain times when there is reasonable structure and the intrinsic motivation is high, but an inability to do even the simplest mundane tasks at other times. “You read so well aloud to me the other day, why can’t you finish a book on your own?” This is the inconsistency that is the hallmark of ADD/ADHD children in general, and it is also present in the gifted child with ADD/ADHD.

The twice-exceptional diagnosis of ADHD and gifted is definitely a Catch-22. These kids don’t seem to fit well anywhere. What we have experienced with our now-14-year-old son is that there has generally been more focus on his weaknesses (the ADD/ADHD symptoms) than on his strengths (his giftedness). This is in contrast to what he needs, because we know the ADD/ADHD symptoms improve when he is appropriately challenged. But often, he has been denied appropriate challenge because of his ADD/ADHD symptoms.

Our son’s advanced math skills were apparent as we moved him from a private school to public as a fourth grader. His

ability for abstract thinking was quite advanced, and he had begun to learn algebra. However, he was denied the opportunity to accelerate in math because he couldn’t complete a timed math facts test in the required amount of time.

When forced to work in an unchallenging environment, he struggles to complete work and is then labeled “unmotivated.”

Medication

Sometimes a situation arises in which someone raises the possibility of ADD/ADHD, and the parent goes to the very busy physician who says, “Well, I don’t know. Let’s try him on a trial dosage of Ritalin® for a few weeks, and if he responds, we will know whether or not he has ADD/ADHD.” This approach is not particularly helpful, since stimulants such as Ritalin® and Dexedrine® decrease motor activity and reaction time and also improve performance on cognitive tests for *most* children (Rapoport et al., 1978).⁶

Physicians, on average, typically have only a few minutes to spend with each patient, and they don’t have the time or the tools to ferret out a diagnosis of ADD/ADHD, especially in a gifted child. They rely heavily—perhaps too heavily—on the behavioral reports from parents and educators. Most children, if placed on a low dosage of stimulant such as Ritalin®, will concentrate better and stay on task. For some gifted children, it appears that such medication actually allows them to endure an inappropriate classroom situation that otherwise may be unendurable. But then medication is being used to support the problem rather than to support the child by improving the learning environment. Sometimes accelerating the child’s curriculum also results in better attention and interest (Rogers, 2002).

In kindergarten, the teacher suggested that I take my son to the pediatrician for an evaluation for ADHD. After the teacher and I filled out forms in first grade, the pediatrician suggested we try Ritalin® to see if it made a difference. My son was put on Ritalin® in the fall of second grade, and it did make a difference. The teachers said his focus was better, he did not talk out of turn as much, wiggle in his seat, etc. However, his affect was flat and his creativity noticeably declined.

He moved to a gifted school in fourth grade and stayed on Ritalin® (or Concerta®) just for the first three months of that year. My son never felt that the medicine helped and never wanted to take it. In the gifted school, there were a few concerns about his behaviors after he stopped taking his medication. However, most agreed that, when challenged appropriately, his behavior and focus were better, even without the medication.

The psychologist at the gifted school questioned whether the diagnosis of ADHD was accurate. Another psychologist who works only with gifted children said that, from what she had been told, he did not sound at all like he had ADHD but instead had a "restless intellect." The psychologist we work with has said that the description of a "restless intellect" does in fact seem to apply to my son, and since he is not being treated for ADHD, not to use that label anymore. Almost three years later, he is still not on any medication, is doing well, and we are all happy about that choice.

As a mother, I am somewhat guilty for the time in my son's life that ADHD was the focus, and not his giftedness.

Some professionals have observed that many adults use a few cups of coffee to improve concentration. Since Ritalin® and caffeine do about the same thing, some parents have opted to try a small dose of coffee with their children prior to seeking prescription drugs. Just like Ritalin®, response to caffeine does not constitute a diagnostic confirmation of ADD/ADHD. Although the effects of caffeine and Ritalin® last about the same length of time, caffeine is a much less precise stimulant. Rather than targeting a single primary neurotransmitter system, caffeine essentially turns up the activity level of the brain non-specifically. Caffeine and Ritalin® are not interchangeable drugs, and if the diagnosis is accurate and medication is warranted, any medication used should be thoroughly discussed and managed by a physician.

Another choice in the American Academy of Pediatrician's guidelines for treatment of ADD/ADHD is Wellbutrin®, which is an atypical antidepressant that appears to help with focus and sustained attention. This drug has been available for some time now and is well researched for use in both adults and children.

There is a new non-stimulant drug, Strattera®, recently released by the Eli Lilly company, to treat ADD/ADHD. To date, there are no formal reports regarding how gifted children who are not ADD/ADHD respond to it. Anecdotal reports suggest that it works better for older children and adolescents, but its results overall with gifted children seem to vary to some extent. Other new drugs will undoubtedly become FDA approved for treatment of ADD/ADHD as time progresses.

Similarities and Differences

Both gifted children and those with ADD/ADHD may have problems in the school setting, but the difference is that children with ADD/ADHD will have problems across settings. Both groups may have problems completing or turning in work. Those with ADD/ADHD have forgotten to do it, been inattentive to the directions and have completed it incorrectly, left it unfinished, or lost it. Gifted children are more likely to choose consciously to not complete work as directed or simply decide not to turn it in—choice is involved. The gifted child is more likely to choose to skip the first 25 of the 50 math problems, while the child with ADD/ADHD may not even have the paper or is unable to complete the lengthy assignment because there is no immediate consequence. In both groups, then, there may be an apparent poor persistence or follow through, but the poor persistence is more consistently seen in those with ADD/ADHD, especially when there is no readily apparent and immediate consequence.

The gifted child often questions rules and traditions, especially when the rules don't make sense; the child with ADD/ADHD may be unaware of the rules or, due to the impulsivity inherent in the disorder, may be unable to adhere to the rules and social conventions. Again, the behavior in the gifted child is a conscious choice.

Both groups are likely to have difficulties with peers. Children with ADD/ADHD, particularly those with both inattention and hyperactive/impulsive behavior, are likely to be more aggressive (Barkley, 1997) or inconsistent with peers, and this negatively affects social interactions in obvious ways. Gifted children may be perceived as aggressive because of a tendency to talk out more and to correct or even lecture others. Their interests and level of discourse do not match that of their peers, and they are frequently rejected by same-age peers.

Incompatible or Contradictory Features

Here, then, is a list of behavioral features that are incompatible with or contradictory to a diagnosis of ADD/ADHD in a child of high intellectual ability, or which at least should raise serious questions as to the accuracy of the ADD/ADHD diagnosis.

- Problems first occur when the child starts formal schooling
- Shows selective ability to attend to tasks that are of interest, with intentional withdrawal from tasks that are not of interest
- Has prolonged intense concentration on challenging tasks of interest with no readily-evident immediate reward
- Is unaware of environment when interested in a task
- Is easily distracted by environment when uninterested in a task, but tries to avoid disturbing others
- Delays response when spoken to, but gives thoughtful response
- Intentionally fails to finish tasks (especially rote work)
- Blurted answers are generally correct
- Interruptions of conversation are to correct mistakes of others
- Can be easily redirected from one activity of interest to another activity of equal interest
- Passes attention tests, and can shift attention readily, if motivated
- Returns to a task quickly after being distracted or called off task

In addition to these factors, Sharon Lind (2002) in her excellent article, "Before Referring a Gifted Child for ADD/ADHD Evaluation" has generated a checklist of 15 items that should be considered. These items can be found on the SENG website at www.sengifted.org. As she notes, such referrals are generally premature unless attempts have been made first to adjust the educational milieu and curriculum. Sometimes a good evaluation can become part of that adjustment or the impetus to move an educational institution in a needed direction. If the evaluation does not offer specific constructive evaluations for the classroom, educational planning, and parenting, then it should be considered incomplete.

An evaluation is only as good as it is thorough, and recommendations must be useful and practical.

Summary

ADD/ADHD is one of the most common reasons that children are referred to mental health professionals. In our opinion, based on our clinical experience, as many as half of the gifted children who have received the diagnosis of ADD/ADHD do not have the significant impairments that are required by the DSM-IV-TR. On the other hand, some gifted children with ADD/ADHD may be overlooked for several years because their intellectual level allows them to compensate. However, serious and credible research is needed to validate our clinical observations.

Many traditional attempts at diagnosing ADD/ADHD have not sufficiently considered gifted behaviors that resemble ADD/ADHD. Most often, professionals simply look at behavioral rating scale reports from parents and educators. Individually administered intelligence, achievement, and neuropsychological tests provide a better assessment, and the evaluating professional should consider the following questions when attempting to differentiate between a gifted child with ADD/ADHD and one without ADD/ADHD: (1) Are the ADD/ADHD behaviors present in most or virtually all settings? (2) Is there great inconsistency in the quality of the child's work in almost every setting? (3) Does the child's behavior significantly change when the novelty of a situation wears off? (4) Is the child's behavior improved when more structure is given? (5) When the child is interrupted, how rapidly is he able to return to a task or able to shift tasks? (6) Can the child engage in solitary activity for long periods of time quietly?

Diagnosing ADD/ADHD warrants a thoughtful, complete evaluation, which includes awareness of the child's intellectual abilities and her context.